

**case**

# 780 Construction King

**111 SAE NET HORSEPOWER (82.77 kW)**

Case-built 336 in<sup>3</sup> high-torque turbocharged diesel.

**SYNCHRONIZED TRANSMISSION**

2-speed full powershift and torque converter.

**CHOICE OF BACKHOES**

Standard 18' (5486 mm) backhoe or optional 18'-22' (6706 mm) telescoping Extendahoe. Over-center backhoe transport position for stability in loading and roading.

**6400 LB (2903 kg) LIFT CAPACITY LOADER**

Powerful 16,000 lb (71.17 kN) breakout force, 8'10" (2692 mm) dump clearance. Return-to-dig.

**UNITIZED MAIN FRAME**

Absorbs heavy shock loads, maintains power train alignment, simplifies servicing.

**COMPONENTIZED POWER TRAIN**

Permits servicing of individual components without disturbing rest of the drive line.

**OPERATOR CONVENIENCE**

Roomy work platform, sloping hood and grille, and 6-way adjustable seat for visibility and operating efficiency.

Unit shown is equipped with non-standard items.

**J I Case**

A Tenneco Company

700 State Street Racine, WI 53404 U.S.A.



# SPECIFICATIONS

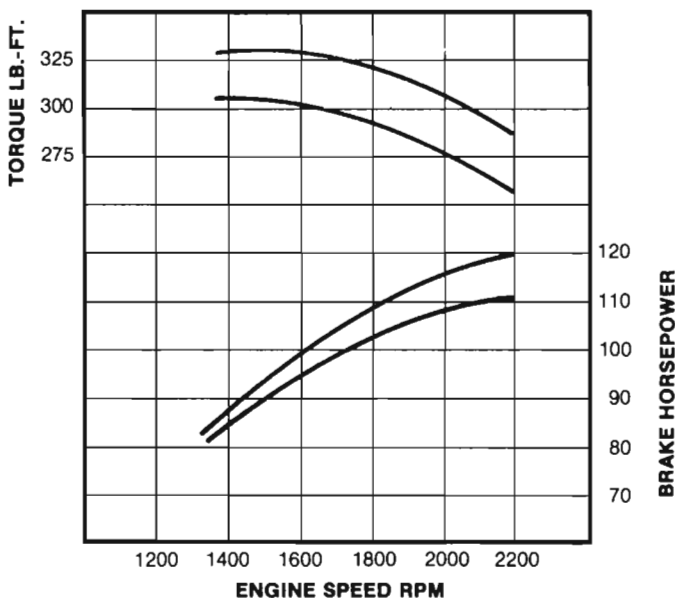
## 780

### CONSTRUCTION KING

#### ENGINE

- Make and model..... Case A336 BDT  
 Type of fuel ..... diesel, No. 2  
 Number of cylinders (valve-in-head) ..... 4  
 Bore and stroke ..... 4.625" x 5" (117 mm x 127 mm)  
 Displacement..... 336 in<sup>3</sup> (5506 cm<sup>3</sup>)  
 Electrical system ..... 24 V  
 Batteries (number and capacity)..... (2) 12 V, 95 amp/hr  
 Compression ratio ..... 16.5 to 1  
 Fuel induction..... open chamber, direct injection  
 Fuel supply ..... injection pump  
 Air cleaner ..... dry type  
 Oil filter, full-flow type ..... renewable, spin-on cartridge  
 Lubrication..... positive pressure  
 Cooling system—type..... pressurized, 10 psi (69 kPa)  
 —pump ..... impeller
- Horsepower  
 (1) Mfg. rated ..... 120 @ 2200 rpm  
 (89.48 kW @ 2200 r/min)  
 (2) SAE net ..... 111 hp @ 2200 rpm  
 (82.77 kW @ 2200 r/min)
- Maximum torque—lb-ft (Nm)  
 (1) Mfg. rated ..... 329 @ 1500 rpm  
 (446 Nm @ 1500 r/min)  
 (2) SAE rated..... 305 @ 1500 rpm  
 (414 Nm @ 1500 r/min)
- Torque at governed rpm—lb-ft (Nm)  
 (1) Mfg. rated ..... 285 @ 2200 rpm  
 (386 Nm @ 2200 r/min)  
 (2) SAE rated..... 255 @ 2200 rpm  
 (346 Nm @ 2200 r/min)
- (1) Manufacturer's rating of maximum horsepower or torque at flywheel when equipped with oil and water pumps. Fuel set at maximum quantity for this application. Corrected to sea level 29.92" (760 mm) Hg and 60°F (16°C) dry air.  
 (2) SAE net flywheel horsepower or torque of engine as applied to this vehicle when equipped with operating accessories including oil, water and fuel pumps, alternator, air cleaner, fan and muffler. Corrected to 500' (152.4 m) altitude with .38" (10 mm) Hg vapor pressure 29.38" (746 mm) Hg observed barometer and 85°F (29°C) per SAE J816a specifications.

### CASE MODEL A336BDT OPEN CHAMBER DIESEL TORQUE PERFORMANCE



#### POWER TRAIN

- Transmission:** 2-speed full powershift with torque converter.  
**Torque converter:** single stage, hydrokinetic type (3.095 to 1 ratio).  
**Reversing unit:** full power, hydraulic clutch.  
**Rear axle:** outboard planetaries with torque proportioning differential.  
**Brakes:** individual or simultaneous, foot-activated, air over hydraulic 17" x 4" (432 x 102 mm) drum type brakes. Can be operated with or without interrupting power flow to rear wheels by clutch cut-off control located on dash. Over center type parking brake with drum on transmission output shaft.

#### CAPACITIES

|   | Gals   | Liters |
|---|--------|--------|
| Cooling system.....                                 | 26 qt  | 24.6   |
| Fuel tank.....                                      | 35 gal | 132.4  |
| Engine lubricating oil (without filter change)..... | 10 qt  | 9.4    |
| (with filter change).....                           | 11 qt  | 10.4   |
| Transmission.....                                   | 20 qt  | 18.9   |
| Rear axle   |        |        |
| Pinion.....   | 16 pt  | 15.1   |
| Planetaries, each.....                              | 5 pt   | 4.7    |

#### TRACTOR OPERATIONAL DATA

##### TRAVEL SPEEDS (mph)

with 18.4 x 24 tires @ governed engine speed

|              | Low            | High             |
|--------------|----------------|------------------|
| Forward..... | 5.2 (8.3 km/h) | 17.4 (27.9 km/h) |
| Reverse..... | 5.2 (8.3 km/h) | 17.4 (27.9 km/h) |

#### FRONT AXLE LOAD RATING

|              |                       |
|--------------|-----------------------|
| Dynamic..... | 68,000 lb (30 844 kg) |
| Static.....  | 17,000 lb (7 711 kg)  |

#### STEERING

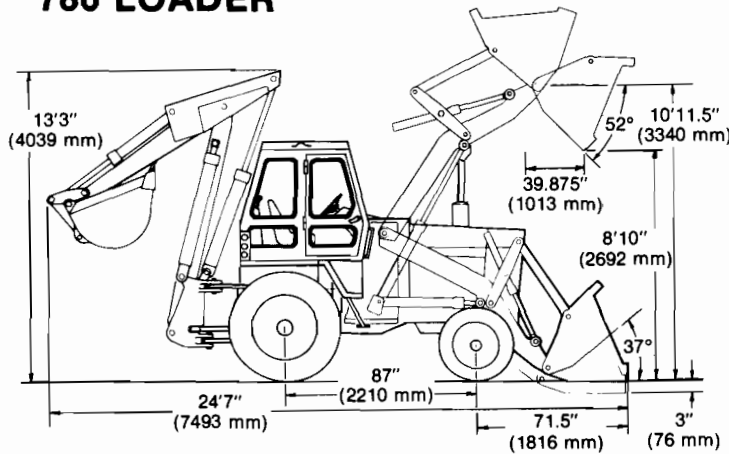
- Power steering (standard)..... hydrostatic  
 Turning ratio (stop to stop)..... 2.5 turns

#### TIRES

- Standard  
 Front..... truck tread, 9.00 x 20, 10PR  
 Rear..... 18.4 x 24, 12PR, R4  
 Optional  
 Front..... truck tread, 14.00 x 17.5, 10 PR  
 Rear..... 18.4 x 28, 12PR, R4/21L x 24, 12PR, R4



# 780 LOADER



## DIMENSIONS

|  | Regular Bucket  | 4-in-1® Bucket   |
|--|-----------------|------------------|
| Transport height.....  | 13'3" (4039 mm) | 13'3" (4039 mm)  |
| Overall length—backhoe in transport position bucket flat on ground ..... | 24'7" (7493 mm) | 24'11" (7595 mm) |
| Overall width—at loader bucket .....                                     | 95" (2413 mm)   | 96" (2438 mm)    |
| <b>Both Regular and 4-in-1® Buckets</b>                                  |                 |                  |
| Overall width—at stabilizer (in travel position).....                    | 95" (2413 mm)   | 95" (2413 mm)    |
| —at rear wheels.....   | 93" (2362 mm)   | 93" (2362 mm)    |
| Wheelbase .....  | 87" (2210 mm)   | 87" (2210 mm)    |
| Tread width—front.....   | 78" (1981 mm)   | 78" (1981 mm)    |
| —rear .....  | 74.5" (1892 mm) | 74.5" (1892 mm)  |
| Overall height (to top of steering wheel) .....                          | 86" (2184 mm)   | 86" (2184 mm)    |
| (to top of ROPS canopy).....   | 117" (2972 mm)  | 117" (2972 mm)   |
| (to top of ROPS cab) .....   | 117" (2972 mm)  | 117" (2972 mm)   |
| Ground clearance—bottom rear axle.....                                   | 15.5" (394 mm)  | 15.5" (394 mm)   |

## LOADER OPERATING DATA

|  |                      |
|--|----------------------|
| Lift capacity to full height .....                 | 6400 lb (29.03 kg)   |
| Breakout force, maximum .....                      | 16,000 lb (71.17 kN) |
| Height to bucket hinge pin .....                   | 10'11.5" (3340 mm)   |
| Dump reach at full height and 45° dump angle ..... | 39.875" (1013 mm)    |
| Dump clearance at full height .....                | 8'10" (2692 mm)      |
| Reach, bucket on ground .....                      | 71.5" (1816 mm)      |
| Bucket rollback at ground level.....               | 37°                  |
| Grading angle .....                                | 75°                  |
| Max dump angle at full height .....                | 52°                  |
| Digging depth below ground line, bucket level..... | 3" (76 mm)           |
| Turning clearance circle diameter                  |                      |
| —with brakes.....                                  | 41'4" (12 598 mm)    |
| —without brakes .....                              | 43'5" (13 233 mm)    |
| Raising time to full height.....                   | 7.2 sec              |
| Dumping time .....                                 | 2.4 sec              |
| Lowering time (power down).....                    | 5.1 sec              |

## LOADER BUCKETS

| Types        | Capacities SAE Rating                      |  | Width |      | Weight |     |
|--------------|--|--|-------|------|--------|-----|
|              | Nominal Heaped                             | Struck                                     | inch  | mm   | lbs    | kg  |
| Case .....   | 1.75 yd <sup>3</sup> (1.3 m <sup>3</sup> ) | 1.5 yd <sup>3</sup> (1.1 m <sup>3</sup> )  | 95    | 2413 | 1184   | 537 |
| 4-in-1 ..... | 1.5 yd <sup>3</sup> (1.1 m <sup>3</sup> )  | 1.25 yd <sup>3</sup> (0.9 m <sup>3</sup> ) | 96    | 2438 | 2040   | 925 |
| Case .....   | 1.75 yd <sup>3</sup> (1.3 m <sup>3</sup> ) | 1.5 yd <sup>3</sup> (1.1 m <sup>3</sup> )  | 95    | 2413 | 1484   | 673 |

## 4-IN-1® BUCKET OPERATING DATA

|   |  |
|---|--|
| Lift capacity to full height .....                  | 5400 lb (2449 kg)  |
| Breakout force, maximum .....                       | 16,000 lb (71.17 kN)   |
| Height to bucket hinge pin .....                    | 10'11.5" (3340 mm)   |
| Dump clearance at full height .....                 | 8'10" (2692 mm)  |
| Dump clearance at full height using clam .....      | 11'10.5" (3620 mm)   |
| Reach, bucket on ground .....                       | 67.25" (1708 mm)   |
| Bucket rollback at ground level.....                | 46°  |
| Grading angle .....                                 | 100°   |
| Maximum dump angle at full height .....             | 42°  |
| Digging depth below ground line (bucket flat) ..... | 7" (178 mm)  |
| Raising time to full height .....                   | 7.2 sec  |
| Dumping time .....                                  | 2.4 sec  |
| Lowering time (power down) .....                    | 5.1 sec  |
| Width of dozer cutting edge .....                   | 93" (2362 mm)  |
| Maximum clam opening.....                           | 46" (1168 mm)  |
| Dozing depth.....                                   | 5.75" (140 mm)   |
| Digging depth using clam .....                      | 44.5" (1130 mm)  |
| Moldboard height.....                               | 40.25" (1022 mm)   |
| Loader cylinders:                                   |  |
| Lift (2) .....                                      | 4.5" dia × 30" stroke, 2.25" rod (114 mm dia × 762 mm stroke, 57 mm rod)   |
| Bucket (2).....                                     | 3.5" dia × 28.75" stroke, 1.75" rod (89 mm dia × 730 mm stroke, 44 mm rod) |
| Clam (4-in-1 only) (2).....                         | 3.5" dia × 9.685" stroke, 1.5" rod (89 mm dia × 246 mm stroke, 38 mm rod)  |

**Control valve:** single-lever control, two-spool valve, positive hold "float" position and raise position in lift circuit. Extra lever and spool for 4-in-1 models. Automatic return-to-dig mechanism is standard.

## DUAL HYDRAULIC SYSTEM OPERATION

The 780 loader/backhoe hydraulic system is truly unique. Here is positive, no-lag response and maximum operating speed to assure top production output. The system has two hydraulic circuits. One is a 23 gpm pump, (87 L/min), the other a 35 gpm (132 L/min) pump. These pumps are tandem mounted, producing a combined flow of 58 gpm (219 L/min). In loader operation, the 35 gpm pump gives power for maximum breakout, simultaneous roll-back and lift, and big lift power. For backhoe operations, the combined pumps operate bucket, boom and crowd to give the 780 maximum available speed when it's needed most—during the dig-lift cycle. At the end of the dig-lift cycle, the system automatically splits. The 23 gpm pump operates swing for greatest speed, while the 35 gpm pump controls boom, crowd and bucket action.

Pump capacity: 23 gpm (87 L/min) and 35 gpm (132 L/min) tandem pumps for combined flow of 58 gpm (219 L/min) @ 2200 rpm @ 2050 psi (213.5 L/min @ 2200 r/min @ 14 134 kPa) with Case Hi-Lo TCH oil.

Pump type: tandem, direct drive, positive displacement, gear type, mounted rear of transmission.

System relief pressure setting .. Loader—2250 ± 50 psi @ 35 gpm (15 513 ± 345 kPa @ 132.4 L/min)  
Backhoe—2050 ± 50 psi @ 23 gpm (14 134 ± 345 kPa @ 219.5 L/min)

Filtration: 25 micron, full-flow replaceable cartridge on return line. Condition gauge for filter.

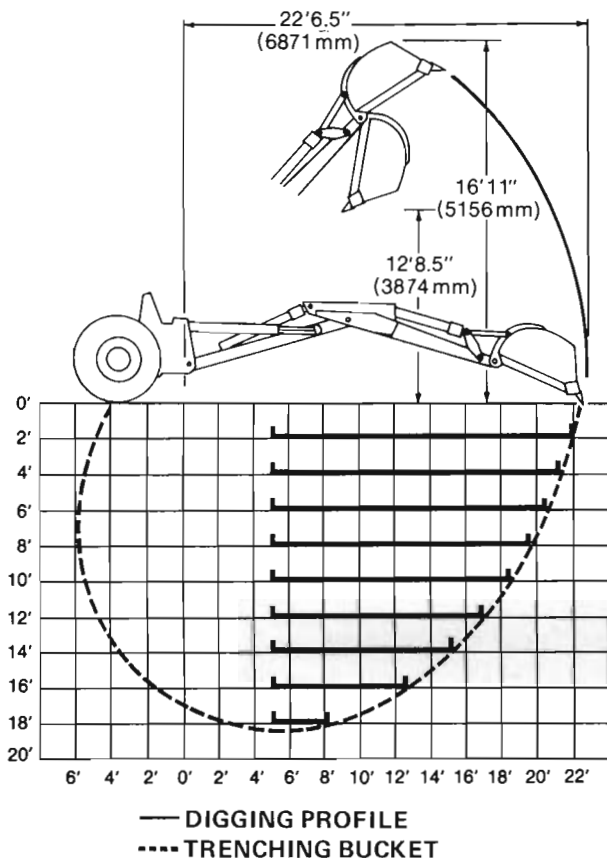
System capacity: 46 gals (174 liters), 11 gals (42 liters) refill.

## LOADER CYLINDERS:

|                             |  |
|-----------------------------|--|
| Lift (2) .....              | 4.5" dia × 30" stroke, 2.25" rod (144 mm dia × 762 mm stroke, 57 mm rod)   |
| Bucket (2).....             | 3.5" dia × 28.75" stroke, 1.75" rod (89 mm dia × 730 mm stroke, 44 mm rod) |
| Clam (4-in-1 only) (2)..... | 3.5" dia. × 9.685" stroke, 1.5" rod (89 mm dia × 246 mm stroke, 38 mm rod) |

Control valve, single-lever control, two spool valve, positive hold "float" position and raise position in lift circuit. Extra lever and spool for 4-in-1 models. Automatic return-to-dig mechanism is standard.

# 18' (5486 mm) BACKHOE



## BACKHOE CYLINDERS:

|                         |  |
|-------------------------|--|
| Boom (2).....           | 4.5" dia × 53.25" stroke, 2.5" rod<br>(114 mm × 1353 mm, 64 mm)              |
| Crowd (1).....          | 6" dia × 43.625" stroke, 3" rod<br>(152 mm × 1108 mm, 76 mm)                 |
| Bucket (1).....         | 5" dia × 37.5" stroke, 3" rod<br>(127 mm × 953 mm, 76 mm)                    |
| Swing (2).....          | 4.5" dia × 14.5" stroke, 2.25" rod<br>(114 mm × 368 mm, 57 mm)               |
| Stabilizer (2).....     | 4.5" dia × 28" stroke, 2.5" rod<br>(114 mm × 711 mm, 63 mm)                  |
| Extension cyl. (1)..... | 4" dia × 48.6" stroke, 2.25" rod<br>(102 mm dia × 1234 mm stroke, 57 mm rod) |

## BACKHOE BUCKETS

| Outside Width                     | Weights |     |
|-----------------------------------|---------|-----|
|                                   | lbs     | kg  |
| 19" (483 mm) trenching .....      | 545     | 247 |
| 24" (610 mm) trenching .....      | 716     | 325 |
| 30" (762 mm) trenching .....      | 812     | 368 |
| 36" (914 mm) trenching .....      | 855     | 388 |
| 42" (1067 mm) trenching.....      | 816     | 370 |
| 20" (508 mm) heavy duty rock..... | 885     | 401 |
| 24" (610 mm) heavy duty rock..... | 980     | 445 |
| 29" (737 mm) heavy duty rock..... | 1120    | 508 |

**NOTE:** All specifications are stated in accordance with ICED Definitions or SAE Standards or Recommended Practices, where applicable.

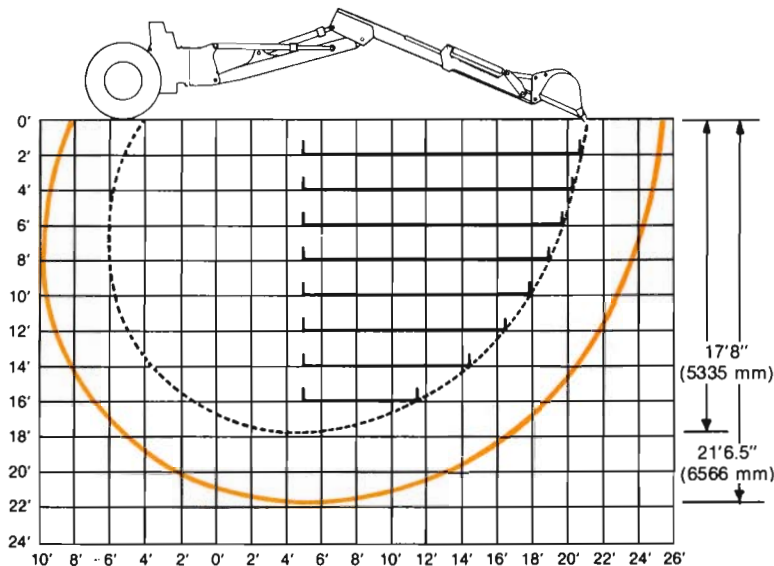
Specifications are limited to the capacity within 45 degrees to either side of the center line of the prime mover. Figures stated on chart are determined by static test and do not include dynamic factors.



## BACKHOE OPERATIONAL DATA

|  |                        |
|--|------------------------|
| Digging depth—ICED rated .....                                 | 18'4" (5588 mm)        |
| Digging depth — 2' flat bottom .....                           | 18'2" (5537 mm)        |
| Swing arc .....  | 180°                   |
| Clearance height .....   | 11'5" (3479 mm)        |
| Digging radius (from swing pivot) .....                        | 22'6.5" (6871 mm)      |
| Reach (from centerline of rear axle) .....                     | 26'4" (8026 mm)        |
| Bucket rotation.....   | 155°                   |
| Loading height .....   | 12'8.5" (3874 mm)      |
| Loading reach at full height .....                             | 7'3" (2210 mm)         |
| Stabilizer spread—operating position .....                     | 13' (3962 mm)          |
| —travel position .....   | 7'11½" (2426 mm)       |
| Maximum grade on which backhoe will<br>make vertical cut ..... | 12°                    |
| Digging force, bucket cylinder .....                           | 13,332 lbs (59.304 kN) |
| Digging force, dipper cylinder.....                            | 10,836 lbs (48.201 kN) |

# 18' (5486 mm) - 22' (6731 mm) EXTENDAHOE



**DIGGING PROFILE**

--- Retracted    — Extended

## OPERATING DATA

|   | Retracted   | Extended    |
|---|-------------|-------------|
| Digging depth .....   | 18'         | 22'         |
|   | (5486 mm)   | (6706 mm)   |
| Overall reach from rear axle centerline.....  | 26'6"       | 30'4"       |
|   | (8077 mm)   | (9246 mm)   |
| Digging radius from swing pivot.....  | 22'7"       | 26'5"       |
|   | (6883 mm)   | (8052 mm)   |
| Loading height—boom at 39° .....  | 7'5"        | 8'2"        |
|   | (2261 mm)   | (2489 mm)   |
| Loading height—boom at 75° .....  | 10'5"       | 11'8"       |
|   | (3061 mm)   | (3556 mm)   |
| Loading reach—boom at 39° .....   | 13'4"       | 17'3"       |
|   | (4064 mm)   | (5258 mm)   |
| Loading reach—boom at 75° .....   | 8'6"        | 12'8"       |
|   | (2591 mm)   | (3861 mm)   |
| Bucket rotation—#1 position .....   | 156°        | 156°        |
| —#2 position .....  | 140½°       | 140½°       |
| Swing arc .....   | 180°        | 180°        |
| Stabilizer spread in  |             |             |
| operating position .....  | 13'         | 13'         |
|   | (3962mm)    | (3962 mm)   |
| travel position .....   | 7'11.5"     | 7'11.5"     |
|   | (2426 mm)   | (2426 mm)   |
| Digging force, bucket cylinder .....  | 13,450 lbs  | 13,450 lbs  |
|   | (59.828 kN) | (59.828 kN) |
| Digging force, dipper cylinder .....  | 10,670 lbs  | 7,992 lbs   |
|   | (47.462 kN) | (35.550 kN) |
| Leveling angle (maximum grade on which<br>the backhoe will make a vertical cut) ..... | 12°         | 12°         |

## DIMENSIONS

|   |           |           |
|---|-----------|-----------|
| Transport height.....   | 13'4"     | 13'1.5"   |
|   | (4064 mm) | (4000 mm) |
| Overall width travel position .....   | 7'11.5"   | 7'11.5"   |
|   | (2426 mm) | (2426 mm) |
| Maximum height, boom 10° over center,<br>bucket & dipper cylinders closed ..... | 24'0"     | 27'9.5"   |
|   | (7315 mm) | (8471 mm) |
| Overall length, loader bucket on<br>ground and backhoe in transport .....       | 24'9"     | 24'9"     |
|   | (7544 mm) | (7544 mm) |
| 4-in-1 bucket .....   | 25'1"     | 25'1"     |
|   | (7645 mm) | (7645 mm) |
| Ground clearance at backhoe .....   | 22"       | 22"       |
|   | (559 mm)  | (559 mm)  |

**NOTE:** Specifications taken with 24" (610 mm) trenching bucket, 95" (2413 mm) heavy duty 1.75 yd<sup>3</sup> loader bucket, 14.00 × 17.5 - 10PR front tires w/liquid ballast, 21L × 24 - 12PR (R4) rear tires, front 700 lb (318 kg) counterweight. Extendahoe, ROPS cab and standard equipment unless otherwise specified.

**APPROXIMATE SHIPPING WEIGHT** 23,200 lbs (10 524 kg)

## EXTENDAHOE HYDRAULIC SYSTEM

Control valve: heavy duty, six-spool, sectional valve with open center parallel circuit. Pedal swing controls. Hydraulic cushioned stops.

## BACKHOE CYLINDERS

See standard 18' backhoe cylinder specifications for details.

## EXTENDAHOE EQUIPMENT

All tractor standard equipment with 14.00 × 17.5, 10 PR front and 21L × 24, 12 PR R4 rear tires. Loader (less bucket) with Hydra-leveling single-lever control, return-to-dig and bucket position gauge. Hydraulic telescoping Extendahoe (less bucket). 58 GPM dual pump with split hydraulic circuitry including four-lever foot swing backhoe control. Single, turn around seat. Cleated stabilizers—front counterweight.

## EXTENDAHOE OPTIONAL EQUIPMENT

See standard 18' backhoe section for details.



## STANDARD EQUIPMENT

- 24 volt electrical system with circuit breaker • 35 amp alternator • Lights, 2 headlights, 2 rear stop and tail lights • Electric fuel pump • Air over hydraulic drum type service brakes • Moisture ejection valve for air brakes • Parking brake • Dry type air cleaner with service indicator • Anti-freeze solution to -20°F • Case 336 in<sup>3</sup> turbocharged diesel engine • Engine oil and fuel filters • Suction type fan • 35 gallon fuel tank • Rear wheel fenders • Hand and foot throttles • Full time hydrostatic steering • Heavy-duty front axle with 78" tread • Planetary rear axle with torque proportioning differential • Full powershift 2-speed transmission • Torque converter • Self-leveling loader (less bucket) • Return-to-dig single lever loader control • Wide accessible platform • Adjustable bucket type seat turns around for backhoe operation • 18' backhoe with foot swing control and cleated stabilizer pads • Tool box • 9.00 x 20, 10PR truck, tube type front tires • 18.4 x 24, 12PR, R4 rear tires • Instrument panel includes: air pressure gauge, hourmeter, tachometer, key switch, push button starter switch, dash lights, voltmeter, converter oil temperature gauge, fuel level gauge, transmission clutch pressure gauge, engine oil pressure gauge, engine water temperature gauge • ROPS canopy w/3" seat belt.

## OPTIONAL EQUIPMENT

- Anti-freeze to -40°F in lieu of -20°F • Pusher fan in lieu of suction fan • Engine side panels (Set of 2) • Ether starting aid kit • Lockup kit • Backup alarm • Rotating beacon • Air-horn • Tire inflation kit • Power assist for backhoe hydraulic valve • Cab heater and front window defroster, rear window defroster • Backhoe dipper light • Two 1.75 yd<sup>3</sup> buckets, 1.5 yd<sup>3</sup> 4-in-1 bucket • 19", 24", 30", 36" and 42" backhoe trenching buckets • 20", 24" and 29" heavy duty rock buckets • Frost point (ripper tooth) • 14.00 x 17.5, 10PR front and 21L x 24, 12PR, R4 and 18.4 x 28, 12PR, R4 rear tires • Loader bucket teeth • Rubber stabilizer pads • 2 rear mounted working lights with 4-way flasher and turn signals • Noise abatement package • 18'-22' hydraulic Extendahoe • Wobble stick. • ROPS cab.

**NOTE:** All specifications are stated in accordance with ICED Definitions or SAE Standards or Recommended Practices, where applicable.

### Important

J I Case Company reserves the right to change these specifications without notice and without incurring any obligation relating to such changes.

